CLAIMS

1. An elevator controller comprising:

a main control unit for controlling running of an elevator, wherein the main control unit predictively calculates a continuous temperature state of a predetermined componential equipment of the elevator and performs an operation control of the elevator based on the predicted temperature state such that the componential equipment does not become overloaded.

2. The elevator controller according to claim 1, further comprising:

a thermal sensing device that detects a temperature of the predetermined componential equipment; and

change amount input means for inputting a predetermined change amount concerning the predetermined componential equipment,

wherein the main control unit calculates a predicted value of a continuous temperature state of the componential equipment using the temperature detected by the thermal sensing device and the change amount inputted by the change amount input means.

3. The elevator controller according to claim 2, wherein the predetermined change amount is a drive input amount for driving the predetermined componential equipment.

4. The elevator controller according to claim 3, wherein the predetermined componential equipment comprises a power drive unit that drives a motor for causing a hoisting machine to rotate in response to a command from the main control unit, and the drive input amount comprises a current value of the power drive unit.

5. The elevator controller according to claim 2, wherein the predetermined change amount comprises a temperature rise amount of the predetermined componential equipment.

6. The elevator controller according to claim 1, wherein the main control unit has a plurality of speed patterns and performs the operation control by selecting a speed pattern that prevents the predetermined componential equipment from becoming overloaded.

7. The elevator controller according to claim 6, wherein the main control unit comprises:

a first data table in which a car moving time and a predetermined change amount on the componential equipment, which are determined by a car load and a speed pattern, are tabulated respectively using the car load and the speed pattern, depending on each moving distance;

candidate extracting means for extracting, based on a moving distance and a car load, all car moving times and change amounts

corresponding to the respective speed patterns from the first data table as candidates;

predictive calculation means for predictively calculating continuous temperature states of the predetermined componential equipment for the respective speed patterns, using the respective extracted change amounts;

allowable range confirming means for selecting speed patterns corresponding to those of the predictively calculated temperature states which are within a predetermined allowable range; and

speed pattern determining means for comparing car moving times corresponding to the respective selected speed patterns with one another and selecting a speed pattern corresponding to a minimum one of the moving times.

8. The elevator controller according to claim 7, wherein the main control unit selects and sets a speed pattern minimizing a predetermined evaluation function that is defined by the continuous temperature state of the predetermined componential equipment calculated using the change amount outputted from the first data table, and by a car moving time corresponding thereto.

9. The elevator controller according to claim 8, wherein the main control unit resets the evaluation function according to a predetermined time or a temperature state detected by the thermal

sensing device.

10. The elevator controller according to claim 2, wherein the change amount of the predetermined componential equipment comprises a time average.

11. The elevator controller according to claim 1, wherein the main control unit calculates a continuous temperature state of the predetermined componential equipment based on changes with time in one of statistics, namely, a number of starts of the elevator per unit time and a number of passengers on the elevator per unit time, and performs the operation control of the elevator based on the temperature state such that the componential equipment does not become overloaded.

12. The elevator controller according to claim 11, wherein the main control unit has a plurality of running modes in each of which a speed pattern is set according to a load within the car and a moving distance, and

the main control unit comprising:

a second data table in which an average change amount and an average waiting time, which are calculated from the statistics for each of the running modes, are respectively tabulated in accordance with the statistics and the running modes;

running result input means for inputting one of running results, namely, a number of starts per unit time and a number of passengers per unit time within a predetermined evaluation time segment;

candidate extracting means for extracting average change amounts and average waiting times corresponding to the respective running modes from the second data table based on the running result inputted from the running result input means;

predictive calculation means for predictively calculating continuous temperature states of the predetermined componential equipment for the respective running modes using the respective extracted average change amounts;

allowable range confirming means for selecting running modes corresponding to those of the predictively calculated temperature states which are within a predetermined allowable range; and

running mode determining means for comparing average waiting times corresponding to the respective selected running modes with one another and selecting a running mode corresponding to a minimum one of the average waiting times.

13. The elevator controller according to claim 11, wherein the main control unit has a plurality of running modes in each of which a speed pattern is set according to a load within the car and a moving distance, and

the main control unit comprising:

a second data table in which an average change amount and an average travel time, which are calculated from the statistics for each of the running modes, are respectively tabulated in accordance with the statistics and the running modes;

running result input means for inputting one of running results, namely, a number of starts per unit time and a number of passengers per unit time within a predetermined evaluation time segment;

candidate extracting means for extracting average change amounts and average travel times corresponding to the respective running modes from the second data table based on the running result inputted from the running result input means;

predictive calculation means for predictively calculating continuous temperature states of the predetermined componential equipment for the respective running modes using the respective extracted average change amounts;

allowable range confirming means for selecting running modes corresponding to those of the predictively calculated temperature states which are within a predetermined allowable range; and

running mode determining means for comparing average travel times corresponding to the respective selected running modes with one another and selecting a running mode corresponding to a minimum one of the average waiting times.